

### **REMARKS/ARGUMENTS**

This Amendment is submitted in response to the office action mailed Feb. 14, 2003. In that office action the Examiner rejected claims 1-7, 11-21, and 39-43 under 35 U.S.C. §112, first paragraph as containing subject matter not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 8-10 were rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Dimitrakipoulos et al. (United States Patent No. 5,981,970) in view of Ogawa et al. (United States Patent No. 5,223,331), Ogawa (United States Patent No. 5,017,875, and Papadimitrakopoulos (United States Patent No. 5,946,550). Claims 35-38 were rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Ogawa (United States Patent No. 4,881,109) in view of Ziegler (United States Patent No. 6,218,687) and Gardner et al. (United States Patent No. 6,111,280).

By this paper, Claims 22-34 are cancelled without prejudice as being drawn to a non-elected invention. Claims 8, 12-19, 21, 35, 40, and 42-43 are amended. Claims 11 and 39 are cancelled without prejudice as a consequence of the amendments to claims 8 and 35. Claims 12-19, 21, 40, and 42-43 are amended to revise dependency as a result of the cancellation of claims 11 and 13. Accordingly, claims 1-10, 12-21, 35-38, and 40-43 are presented for reconsideration by the Examiner.

#### **Section 112 Rejections**

The Examiner rejected claims 1-7, 11-21, and 39-43 under 35 U.S.C. §112, first paragraph, asserting that the claims contain subject matter not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. The Applicant submits that the specification is enabling, and thus presents the following arguments.

The first paragraph of 35 U.S.C. §112 requires that a patent specification contain “a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.” The MPEP explains that “[i]n order to make a rejection [on grounds of lack of enablement], the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention.” MPEP §2164.04, quoting *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). As set forth below, this rejection should be withdrawn.

To support the 35 U.S.C. §112 rejection of the Office Action dated February 14, 2003, the Examiner first asserts that “no teaching” is provided in the specification of an organic semiconductor layer meeting the limitations of claims 1-7, 11-21, and 39-43. The Applicant directs the Examiner’s attention to portions of the specification of the instant Application, including pages 13-15 among others, and Figures 1-3. These and other portions of the Application discuss the structures, characteristics, suitable components, and properties of molecules which may be used to form the channel layer for a transistor according to the invention.

The Examiner next states that “no teaching” is provided in the Application to explain assembly of suitable molecules for making a monolayer according to the claims. Office Action, p. 2, para. 3. The Manual of Patent Examination Procedure explains the test for assessing enablement in §2164.01 by citing *United States v. Telectronics, Inc.*, in which the court noted that “[t]he test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.” 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). Section 2164.01 further explains that in order to meet this test, a patent specification “need not teach, and preferably omits, what is well known in the art.” *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

The prior art cited helps to demonstrate the level of skill of one of ordinary skill in the art prior to the filing of the instant application. Since the prior art patents cited by the Examiner contain examples of forming semiconducting monolayer films, they demonstrate that one of skill in the art at the time of filing of the instant application would understand the creation of semiconducting monolayer films. One such example was cited by the Examiner on page 4 of the Office Action. The Ogawa, ‘109 reference “teaches an organic self-assembled . . . transistor sensor.” As seen throughout the specification and figures of this patent, this reference demonstrates that one of skill in the art about 15 years prior to the filing of the instant Application understood the preparation of transistors utilizing organic monolayer films. *See*

also, Ogawa, U.S. Patent No. 4,881,109, Abstract, Figures 1-7, and specification column 2, line 25-column 4, line 12. This further demonstrates that the disclosure provided in the instant application is sufficient to enable one of ordinary skill in the art to prepare the semiconducting monolayer films of the invention.

In addition to the above, the Applicant notes that the specification of the instant application gives sufficient guidance to those of skill in the art to practice the invention by providing suitable organic molecules and suitable end group modifications for use in producing the semiconducting monolayer films of the invention. For specific descriptions, see the specification, pages 13-15, among other references. The specification also discusses the structure and characteristics of the final films used to produce the monolayer channels. For examples see pages 6-7 and 10-13 of the specification. Examples of methods for manufacturing transistors using organic monolayers are also discussed. For such examples see pages 12-13, and 19-20 of the specification. The Applicant thus submits that the specification of the instant Application is fully enabling to one of ordinary skill in the art.

Finally, the Examiner asserts that the experimental data reported in the specification do not involve molecules falling within the scope of the claims, and further, that no experimental data is provided demonstrating a completed semiconductor device exhibiting transistor action. The examples referred to by the Examiner demonstrate the fabrication of transistors having structural similarity to those claimed using representative monolayer films. As such, they aid in properly disclosing the invention. As explained in MPEP §2164.02, “[c]ompliance with the enablement requirement of 35 U.S.C. 112, first paragraph, does not turn on whether an example is disclosed. . . . The specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without an undue amount of experimentation.” *See, e.g., In re Borkowski*, 422 F.2d 904, 908, 164 USPQ 642, 645 (CCPA 1970).

### Section 103 Rejections

The Examiner rejected claims 8-10 under 35 U.S.C. §103(a) as being unpatentable over Dimitrakipoulos et al. (United States Patent No. 5,981,970) in view of Ogawa et al. (United States Patent No. 5,223,331), Ogawa (United States Patent No. 5,017,875, and Papadimitrakopoulos (United States Patent No. 5,946,550). Claims 35-38 were rejected by the

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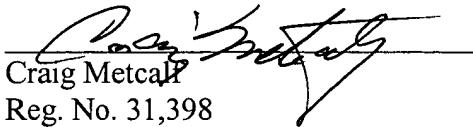
It has been established that the Examiner carries the burden of establishing a *prima facie* case of obviousness. *See, e.g., In re Glaug*, 283 F.3d 1335 (Fed. Cir. 2002); *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); MPEP §2142. In order to establish a *prima facie* case, “all the claim limitations must be taught or suggested by the prior art.” MPEP §2143.03. As amended, claims 8-10 are not rendered unpatentable by Dimitrakipoulos in view of the ‘331, ‘875, and ‘550 patents. Similarly, as amended, claims 35-38 are not rendered unpatentable by Ogawa (‘109) in view of Ziegler and Gardner.

In the office action of February 14, 2003, the Examiner combined the pentacene-based organic transistor of Dimitrakipoulos with other transistors including organic layers taught in the ‘331, ‘875, and ‘550 patents. In view of the amendment made to claim 8, these patents in combination do not render the amended claims obvious because they fail to teach the use of an organic monolayer in which each molecule of the monolayer includes a sensing end group and an attaching end group.

With regard to claims 35-38, the Examiner combined the organic self-assembled transistor sensor of Ogawa (‘109) with the sensor array of Ziegler and the multiple-gas detecting array of Gardner. In view of the amendment made to claim 35, these claims in combination do not render the amended claims obvious because they fail to teach the use of an organic monolayer in which each molecule of the monolayer includes a sensing end group and an attaching end group.

In view of the foregoing, Applicants respectfully submit that the application is in condition for immediate allowance. In the event that any questions remain, the Examiner is respectfully invited to initiate a telephone conference with the undersigned.

Respectfully submitted,  
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